

REMARKS

This Amendment, filed in reply to the Office Action dated September 26, 2006, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

Claims 1-23 have been examined. Claims 9-11 and 21 have been rejected under 35 U.S.C. § 102(a) and claims 1-8, 12-20, 22 and 23 have been rejected under 35 U.S.C. § 103(a). New claims 24-28 have been added.

I. Rejection under 35 U.S.C. § 102(a)

Claims 9-11 and 21 have been rejected under 35 U.S.C. § 102(a) as being anticipated by Miyamoto et al. ("Miyamoto"), United States Patent No. 6,529,467. Applicant traverses the rejection.

Claim 9

Applicant submits that claim 9 is not anticipated by Miyamoto. For example, claim 9 recites a signal output method providing a write permission signal including a repetition of a write enable interval and a pause interval; providing a write data signal to be output during the write enable interval; outputting a write signal including the write permission signal and the write data signal; and writing information to an optical information recording medium by using the write signal. Claim 9 further recites that T_{lmax} denotes an output interval of a last write data signal among write data signals corresponding to a write permission signal immediately preceding a pause interval of the write signal in a case in which the pause interval of the write signal is a maximum, T_{lmin} denotes an output interval of the last write data signal among the

write data signals corresponding to a write permission signal immediately preceding the pause interval of the write signal in a case in which the pause interval of the write signal is a minimum, T denotes a reference period, and the write signal is outputted so that T_{lmax} , T_{lmin} and T satisfy the formula (2): $T_{lmin} - T_{lmax} \geq 0.01T$.

The Examiner appears to contend that Fig. 9 of Miyamoto discloses the signal output method of claim 9. Particularly, the Examiner asserts that T_c immediately preceding $5T$ space reads on the T_{lmax} , which denotes an output interval of a last write data signal among write data signals corresponding to a write permission signal immediately preceding a pause interval of the write signal in a case in which the pause interval of the write signal is a maximum. The Examiner also asserts that T_c immediately preceding $3T$ space reads on T_{lmin} , which denotes an output interval of the last write data signal among the write data signals corresponding to a write permission signal immediately preceding the pause interval of the write signal in a case in which the pause interval of the write signal is a minimum. Applicant respectfully disagrees.

Column 7, line 30, of Miyamoto describes T_c as designating the width of a cooling pulse. Miyamoto discloses using the cooling pulse to cool the record film by lowering the laser power after the last pulse of the beam pulse waveform that forms a particular mark portion (col. 7, lines 12-16). The power level of the cooling pulse is designated as P_4 in Figs. 4-9 of Miyamoto. P_3 , on the other hand, designates the power of the mark forming pulse, which melts the record film, which is then rapidly cooled (col. 8, lines 28-32). According to Fig. 9 of Miyamoto, the cooling pulse width T_c may be adjusted according to a space portion following a mark portion (col. 9, line 61-col. 10, line 5). Thus, in Miyamoto, T_c controls the edge position of the energy pulse

waveform (*i.e.*, preventing the leading edge of the mark portion from growing) (col. 10, lines 9 - 13).

In view of the above, the Examiner appears to contend that the cooling pulse of Miyamoto, with a width of T_c , corresponds to a write data signal of the present invention, having a width (output interval) of T_{lmax} or T_{lmin} . However, the cooling pulse of Miyamoto is used to cool the record film by lowering the laser power *after* the last pulse of the beam pulse waveform that forms a particular mark portion. Whereas, in the present invention, a write data signal is output during a write enable interval (*see*, Figs. 2-3, T_{top} and T_{lp} and paragraph 50). Thus, the cooling pulse of Miyamoto does not read on the write data signal of the present invention since no data is written during cooling. Each write interval of Miyamoto appears to be of consistent length such that no time differences are incurred. This is fundamentally the opposite of Applicant's claim 9.

Therefore, Miyamoto fails to disclose all the features of claim 9 and Applicant submits that claim 9 is patentable for at least the reasons presented above.

Claims 10-11

Since claims 10 and 11 depend upon claim 9, Applicant submits that claims 10 and 11 are patentable at least by virtue of their dependency.

Claim 21

Claim 21 has been rejected by the Examiner for similar reasons to those given for claim 9. However, for analogous reasons as set forth above for claim 9, claim 21 should also be deemed allowable.

II. Rejection under 35 U.S.C. § 103(a)

Claims 1-6, 17-18, 20 and 23 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyamoto in view of Sasaki et al. ("Sasaki"), United States Patent Publication 2004/0008601. Applicant traverses the rejections.

Claim 1

Applicant respectfully submits that Miyamoto and Sasaki, above or in combination, do not teach or suggest all of the features of the claims, and a person of ordinary skill in the art would not have been motivated, as asserted in the Office Action, to modify Miyamoto based on Sasaki to produce the claimed invention.

Claim 1 recites a signal output method providing a write permission signal including a repetition of a write enable interval and a pause interval; providing a write data signal to be output during the write enable interval; outputting a write signal including the write permission signal and the write data signal; and writing information to an optical information recording medium by using the write signal. Claim 1 further recites that T_{fmax} denotes an output interval of a first write data signal among write data signals corresponding to a write permission signal immediately subsequent to a pause interval of the write signal in a case in which the pause interval of the write signal is a maximum, T_{fmin} denotes an output interval of a first write data signal among the write data signals corresponding to a write permission signal immediately subsequent to the pause interval of the write signal in a case in which the pause interval of the write signal is a minimum, T denotes a reference period, and the write signal is outputted so that T_{fmax} , T_{fmin} and T satisfy the formula (1): $T_{fmax} - T_{fmin} \geq 0.01T$.

The Examiner contends that Miyamoto teaches that there is a difference between the pulse widths in different mark lengths in column 12, lines 64-67 and line 1 column 13.

Assuming *arguendo* that Miyamoto does disclose different pulse widths, these pulse widths depend upon the length of the mark portion in which that pulse resides (*e.g.*, Width of First Pulse of P3 Level - Mark portion 3T wide; 1T). On the contrary, claim 9 claims that T_{fmax} and T_{fmin} denote output intervals (widths) of first write data signals immediately subsequent to a pause interval of the write signal in a case where the pause interval is a maximum or minimum, respectively. Thus, the pause interval differs according to the data to be written and the output intervals of both T_{top} and T_{lp} are set accordingly in order to reduce the jitter. Miyamoto fails to teach or suggest setting the width of a write data signal according to the length of a pause interval.

The Examiner also contends that Sasaki specifically teaches mark sizes in Figure 16. However, Sasaki does not correct the deficiency with regard to Miyamoto, and since the Examiner has not alleged that the combination of the Miyamoto and Sasaki suggest such features, Applicant submits that claim 1 is patentable for analogous reasons. Furthermore, Applicant submits that Miyamoto, alone or in combination with the Sasaki, does not suggest the features discussed above in conjunction with claim 1 for reasons that are similar to the reasons mentioned above.

Applicant also traverses the rejection since a person of ordinary skill in the art would not have been motivated, as asserted in the Office Action, to modify Miyamoto. The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of the

invention to include the concept of different mark sizes as taught by Sasaki into the system of Miyamoto. The Examiner contends the reason to do so would be that the pulse width and pulse level are adjusted depending on the material of the disk. Applicant respectfully disagrees.

The present invention recites methods of forming pits having stable shapes on an optical information recording medium having a narrower track pitch and a higher recording density. Further, Miyamoto does not teach or suggest adjusting a writing pulse based on the material of the disk, but instead suggests, at best, adjusting a writing pulse based on the mark portion width. Therefore, a person of ordinary skill in the art at the time of the invention would not have been motivated to modify Miyamoto to adjust the pulse width depending on the material of the disk.

Therefore, Applicant submits that claim 1 is patentable for at least these reasons.

The remaining claims are patentable based on their dependency. The additional references of Spruit and Nobukuni in combination with Miyamoto and Sasaki do not make up for the deficiencies of the primary reference or primary combination.

III. Newly added claims

Applicant has added new claims 24-28. Applicant submits that the prior art does not suggest setting one of a plurality of recording strategies according to a recording speed magnification; and modulating at least one of $T_{f_{max}}$ and $T_{f_{min}}$ (or $T_{l_{max}}$ and $T_{l_{min}}$) according to the set recording strategy, wherein the pause interval is set by the set recording strategy as required by the claims.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 10/749,380

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IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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